

## PATENT ABSTRACTS OF JAPAN

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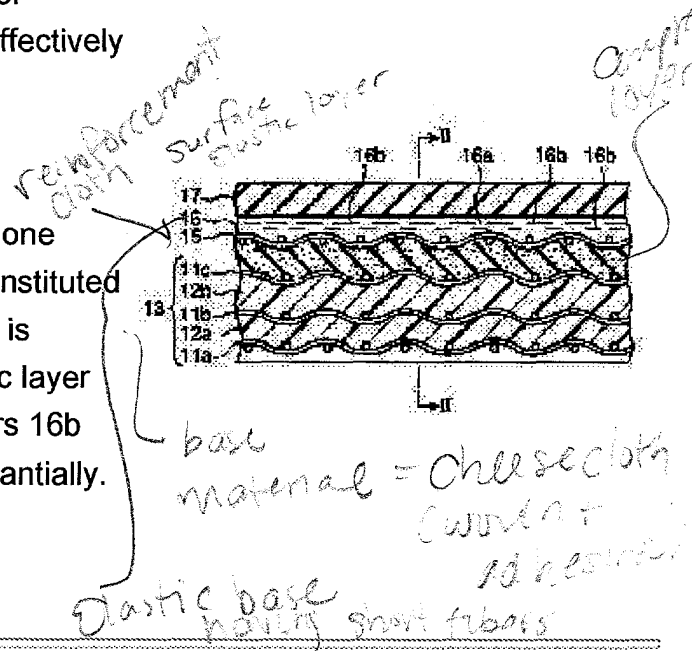
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## (54) SHEETLIKE BLANKET FOR PRINTING

## (57)Abstract:

PROBLEM TO BE SOLVED: To provide a sheetlike blanket for printing which prevents elongation of a surface rubber layer effectively and enables execution of stable printing for a long period, notwithstanding the relatively simple constitution thereof.

SOLUTION: In a sheetlike blanket for printing which has a compressive layer and a surface elastic layer 17 provided on one surface of a sheet base, an elongation preventing layer 16 constituted of an elastic base 16a wherein short fibers 16b are dispersed is formed between the compressive layer and the surface elastic layer 17, in contact with the surface elastic layer 17. The short fibers 16b are arranged respectively along the direction of printing substantially.



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DETAILED DESCRIPTION

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## [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the sheet-like blanket for offset printing use for the offset press.

[0002]

[Description of the Prior Art] Generally the sheet-like rubber blanket used for offset printing has a sponge rubber layer (compressive layer) and a surface rubber layer on a reinforcement base material. A reinforcement base material raises the intensity of the whole blanket, and makes the life of a blanket usually extend so that printing pressure and a shock can be borne when [two or more] the base fabric of 3-4 sheets is usually fixed with adhesives and a blanket is attached in the blanket cylinder of a printing machine while making it inelastic in a blanket.

[0003] By the way, the surface rubber layer becomes depressed with a printing cylinder, and the blanket for printing in the inclination which the swelling called a blister to the periphery of this impression generates, when it is pressed the printing cylinder, where a blanket cylinder is equipped. This blister brings about generating of the double in printed matter, or a slur in order to make the effective periphery length of a blanket increase. Then, in order to suppress generating of such a blister conventionally, considering as the reinforcement cloth which processed stop being extended between a compressive layer and a surface rubber layer is performed.

[0004] However, as a reinforcement cloth formed directly under a surface rubber layer, thickness 0.2 or the comparatively thin thing of 0.3mm is used, and processing is also slowly performed stop being extended so that it may not have a bad influence on printing. It is because the intersection of the warp of a reinforcement cloth and the weft will be reflected in a surface rubber layer through a compressive layer and texture will be reproduced by printed matter, in this reinforcement cloth completely processes stop being extended firmly that it seems that it is inelastic.

[0005] Therefore, with the conventional blanket, since the reinforcement cloth directly under a surface rubber layer tends [comparatively] to be extended in this way, when generating of a blister could not fully be suppressed but it was used over the long period of time, the problem that double and a slur occurred was in printed matter.

[0006]

[Problem(s) to be Solved by the Invention] Therefore, this invention solves the above-mentioned conventional trouble though it is comparatively easy composition, it prevents the elongation of a surface rubber layer effectively, and it makes it a technical problem to offer the blanket for printing of the shape of a sheet which enables stable printing over a long period of time.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, in this invention, in addition to the conventional reinforcement cloth, it replaces with a reinforcement cloth, and between a compressive layer and surface rubber (elasticity) layer, a surface elasticity layer is touched and a layer is formed it consists of elastic matter which distributed the staple fiber, and stop being extended. Each staple fiber in a layer is substantially arranged along the printing direction stop being extended.

[0008] That is, it is the blanket for printing of the shape of a sheet equipped with the compressive layer and the surface elasticity layer on one field of a sheet base material, and according to this invention, it has a layer stop being extended and the sheet-like blanket for printing characterized by the thing which consists of elastic matter which distributed the staple fiber in contact with this surface-elasticity layer between this compressive layer and the surface-elasticity layer.

and for which each of this staple fiber is substantially arranged along the printing direction is offered.

[0009] As for a staple fiber, it is desirable respectively to have a length of 0.5mm or 8mm. Usually, a layer contains staple fiber at 2 or 15% of the weight of the rate of the elastic matter stop being extended. A staple fiber can be chose from a cotton fiber, Vinyon fiber, nylon fiber, a polyester fiber, aromatic-polyamide fiber, a glass fiber, a carbon fib an alumina fiber, stainless-steel fiber, or its mixture.

[0010]

[Embodiments of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 is a cross section in alignment with the longitudinal direction of the sheet-like blanket concernin the gestalt of operation of one of this invention, and drawing 2 is a cross section in alignment with line II-II of drawi

1. As shown in these views, except [ which is explained in full detail behind ] having prepared the layer stop being extended, this blanket 10 had the same structure as the usual sheet-like blanket, and is equipped with the base materi 13 which it comes to paste up with the adhesives 12a and 12b which consist of acrylonitrile-butadiene rubber (NBR) for the base fabrics (for example, cheesecloth) 11a, 11b, and 11c of plurality (the gestalt of this operation three sheet [0011] On the base material 13, the sponge rubber layer (compressive layer) 14 which consists of a porosity object o nitril butadiene rubber is formed. On this compressive layer 14, the reinforcement cloth 15 which consists of a cheesecloth is formed. This reinforcement cloth usually has 0.2 or the thickness of 0.3mm, as stated also above.

[0012] Now, on the reinforcement cloth 15, the layer 16 is formed it is based on this invention and stop being extend Stop being extended, it comes to distribute much staple-fiber 16b in solid (solid) elastic matter (base material) 16a which consists of rubber, such as this material that has rubber elasticity, especially NBR, and the layer 16 has arrang each staple-fiber 16b substantially to the circumferencial direction, when a blanket cylinder is equipped with the printing direction, i.e., a blanket, in the shape of a cylinder. That is, as best shown in drawing 1, each staple-fiber 16 is extended along the printing direction.

[0013] In the length direction, staple-fiber 16b is the thing of non-elasticity, and is not twisted in itself. A thing suita as such a staple fiber is a steel staple fiber like a cotton staple fiber, a Vinyon staple fiber, a nylon staple fiber, a polyester staple, an aromatic-polyamide staple fiber (aramid staple fiber) (typically Teijin Conex, the E. I. du Pont de Nemours Kevlar), a glass staple fiber, a CHIRANO staple fiber (typically Ube Industries thing), an alumina staple fiber, and a stainless-steel staple fiber (typically Naslon made from Japanese \*\*\*\*) etc. Also in it, when thermal resistance, chemical resistance, intensity, flexibility, a handling low price, cost, etc. are taken into consideration in an adhesive property with rubber, especially NBR, and the difficulty of being extended, cotton and especially a Vinyon staple fiber are desirable.

[0014] In the range which does not cause trouble to formation of a layer 16 stop being extended, although the length staple-fiber 16b has an as much as possible desirable \*\*\*\*\*, length (0.5mm or about 8mm) of a staple fiber can usually be used for it. If length is longer than 8mm, uniform distribution in a layer 16 and the array to the printing direction cannot attain staple fibers become entangled and stop being extended.

[0015] As for the size (diameter) of staple-fiber 16b, it is desirable that it is 0.02-0.1mm. Thus, by using a narrow staple fiber, \*\*\*\* of the fiber by printing pressure is avoidable.

[0016] the amount of staple-fiber 16b blended into a layer 16 stop being extended receives the surface rubber layer 1 - stop being extended -- an effect -- in consideration of uniform distribution in a layer 16, the array nature to the printing direction, the homogeneity of further coating, etc., it is determined stop being extended That is, an effect is n fully acquired, and if many [ too ], uniform distribution in a layer 14, the array nature to the printing direction, and th homogeneity of coating will not fully be acquired [ if there are too few amounts of staple-fiber 16b, stop being extended ] that staple-fiber 16b should stop being extended. Although the amount of staple-fiber 16b cannot generall be \*\*\*\*\* (ed) since it is dependent on composition of the quality of the material of a staple fiber and length, and the rubber compound (composition raw material of elastic base-material 16a) explained later, the amount of the solvent used in the case of formation of a layer 16 stop being extended, etc., its 2 or 15% of the weight of rate of the weight rubber compound (except for solvent), i.e., elastic base material, 16a is desirable.

[0017] The thickness of the elongation stop layer 16 which carried out uniform distribution of the staple-fiber 16b in elastic matter 16a has sufficient sufficient thickness to be extended and do the stop effect so, without spoiling the compression property of the compressive layer 14. The compression property of the compressive layer 14 of being located in the bottom of it if the thickness of a layer 16 is [ stop being extended ] too thick is attenuated, and if the thickness is too thin, sufficient elongation stop effect will not be acquired. Although this thickness cannot generally b

specified since it is dependent on the quality of the material of staple-fiber 16b, length, loadings, etc., it is desirable that it is within the limits of 0.1-0.4mm.

[0018] Now, this elongation stop layer 16 can be formed as follows. That is, the predetermined rubber cement-like matter is applied using a doctor blade by the doctor coating method, making it run the base material 13 in which the compressive layer 14 and the reinforcement cloth 15 were formed in the printing direction first. Each staple fiber in the pastiness matter is arranged in the printing direction (the run direction) of a base material by this application. As for the doctor blade to be used, it is desirable for the coating edge section to be roundish. For example, as shown in drawing 4, the side which touches the rubber cement-like matter in edge section 32a can prepare a radius of circle in the coating edge section by bending to an opposite side by forming a curved surface, or forming the pillar-like objects 33 successively in the edge section, as shown in drawing 5. Whether distribution of the staple fiber in the rubber cement-like matter is uneven by using the doctor blade which has the edge section which wore such a radius of circle or viscosity was uneven, while being able to form the layer 16 stop being extended, it is understood [ uniform ] that you can make arrange a staple fiber along the above-mentioned run direction.

[0019] The above-mentioned pastiness matter mixes solvents, such as toluene and a methyl ethyl ketone, to the elastomer precursor (rubber compound generally used usually) which is changed into the elastic matter by vulcanization etc. and forms elastic base-material 16a, blends a staple fiber at an above-mentioned rate, and is prepared by pastiness nothing, and this. In order to attain the good array to the good homogeneity of an application, and the printing direction of a staple fiber, as for the viscosity of the rubber cement-like matter, it is desirable that it is 15 or 50poise, therefore for the amount of a solvent, it is desirable to carry out to 250% - about 300% of the weight of a rubber compound.

[0020] If drawing 1 and drawing 2 are referred to again, after [ which was described above ] forming a layer 16 stop being extended like, the surface elasticity (rubber) layer 17 as the best layer will be formed. Usually, this surface rubber layer 17 has 0.2 or the thickness of 0.4mm, and can form it by conventional methods, such as the doctor coating method.

[0021] In the sheet-like blanket of the above composition, a layer 16 prevents effectively the elongation of the surface rubber layer 17 by the printing pressure impressed by the printing cylinder etc. stop being extended. That is, the staple fiber of a large number substantially extended in the printing direction in a layer 16 stop being extended prevents and has the elongation of a layer 16 stop being extended in order not to be extended in itself, and prevents the elongation of the surface rubber layer 17. In this way, the sheet-like blanket of this invention can prevent generating of the blister on the surface rubber layer 17, and the quality printed matter which does not have double, a slur, etc. over a long period time can be offered.

[0022] Such a blanket can be manufactured by the conventional method. For example, the base fabrics 11a-11c which applied the adhesives (for example, NBR etc.) which constitute the adhesives layers 12a and 12b were piled up upwards, the sponge rubber layer 14 is laid, and the reinforcement cloth 15 which applied the adhesives (for example NBR etc.) which constitute the adhesives layer 16 is laid on it. Subsequently, after forming a layer 16 stop being extended as stated above, the surface rubber layer 17 is laid in the last, and the bottom of heating of this laminated material is pressurized, it unifies, and a sheet-like blanket is obtained. As mentioned above, although 1 operation of this invention was explained as composition which has the reinforcement cloth 15, even if it omits a reinforcement cloth, the same effect as the above is acquired.

[0023]

[Example] Hereafter, an example explains this invention.

The blanket of the structure explained about example 1 drawing 1 and drawing 2 and the same structure was produced. The cheesecloth was used as base fabrics 11a-11c and a reinforcement cloth 15, and these were pasted up with NBR system adhesives.

[0024] On the other hand, the rubber compound of the composition shown in the following table 1 was prepared, the methyl ethyl ketone was added to this, the pastiness matter was prepared, and the Vinylon staple fiber with a length [ 2mm ] and a diameter of 0.02mm was mixed at 3% of the weight of a rate to the rubber compound 100 weight section on this rubber cement, it applied so that the thickness after dryness might be set to 0.2mm by this mixture doctor coating method, and it dried. In this way, the coat of the rubber cement for surface-layer formation was similarly carried out the thickness of 0.5mm on the layer, and stop being extended, after [ which was vulcanized ] being obtained, this was ground to the thickness of 0.3mm. In this way, the desired sheet-like blanket was obtained.

[0025]

Table [ ] 1 \*\* a part -- Loadings (weight section)

NBR JSR N232S 100 (Japan Synthetic Rubber nitril butadiene rubber)

Zinc white No. 1 5 (zinc oxide)

Sulfur 2 SOKUSHI Norian DM 1.5 (Sumitomo Chemical vulcanization accelerator)

NOKURAKKU SP 2.0 (Ouchi Shinko Chemical antioxidant)

Cerite 505 40 (bulking agent : diatomaceous earth made from Johns-Manville)

High sill 233 15 (reinforcing agent :P. water silica made from ittsburgh Plate Glass)

Titanium white 5 (coloring agent : titanium oxide)

When the blanket cylinder was equipped with this blanket and having been printed by including in the offset press, there is no double of printing, BATATSUKI of a form was not observed, either, and generating of version wear of af printing of the 200,000 sections was not seen.

[0026] The sheet-like blanket was manufactured completely like the example 1 except having not prepared a layer st being extended example of comparison 1. When the blanket cylinder was equipped with this blanket and having bee printed by including in the offset press, the double of printing occurred, BATATSUKI of a form was also observed a version wear was seen after printing of the 200,000 sections.

[0027]

[Effect of the Invention] According to this invention, as explained above, though it is comparatively simple composition, the elongation of a surface rubber layer is prevented effectively and the blanket for printing of the shap of a sheet which enables stable printing over a long period of time is offered.

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[Translation done.]

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 CLAIMS
 

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[Claim(s)]

[Claim 1] It is the sheet-like blanket for printing which has a layer stop being extended and is characterized by the th which consist of elastic matter which it is the blanket for printing of the shape of a sheet equipped with the compress layer and the surface elasticity layer on one field of a sheet base material, and this surface elasticity layer was touche [ matter ] and distributed the staple fiber between this compressive layer and the surface elasticity layer, and for whic each of this staple fiber is substantially arranged along the printing direction.

[Claim 2] The sheet-like blanket for printing according to claim 1 with which a staple fiber has a length of 0.5mm or 8mm.

[Claim 3] The sheet-like blanket for printing according to claim 1 or 2 with which a layer contains a staple fiber at 2 15% of the weight of the rate of the elastic matter stop being extended.

[Claim 4] The claim 1 which a staple fiber becomes from a cotton fiber, Vinylon fiber, nylon fiber, a polyester fiber, aromatic-polyamide fiber, a glass fiber, a carbon fiber, an alumina fiber, stainless-steel fiber, or its mixture, or the sheet-like blanket for printing of three given in any 1 term.

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[Translation done.]